What is claimed is:

1. A method of synergistic production of movements in the upper airway, comprising:
   a) chronic implantation of at least two intra-muscular stimulators into different muscles involved in the upper airway and vocal tract,
   b) chronic implantation of a signal generator that generates electrical pulses to at least two intra-muscular stimulators;
   wherein electrical pulses from the signal generator activate at least two muscles to produce the synergistic movement control during the activity.

2. The method of claim 1, wherein at least one pair of muscles are chronically implanted and the synergistic control comprises enhancing a portion of the complex pattern of movements, or producing a portion of the complex pattern of movements.

3. The method of claim 1, wherein the at least two muscles are selected from the group consisting of at least one mylohyoid muscle, at least one geniohyoid muscle and at least one thyrohyoid muscle and the synergistic movement comprises raising of the larynx and opening of the upper esophageal sphincter.

4. The method of claim 1, wherein the signal generator generates electrical pulses to the at least two intra-muscular stimulators in a manner suitable for initiating movements in a person delayed in initiating movement during speech, swallowing or voice.

5. The method of claim 1, wherein the signal generator generates electrical pulses to the at least two intra-muscular stimulators in a manner suitable for augmenting movement in a person with limited range and speed of movement during speech, swallowing or voice.

6. The method of claim 1, wherein the at least two muscles protect the airway during food ingestion using chronic implantation of intra-muscular stimulators.

7. The method of claim 1, wherein the at least two muscles protect the airway during food ingestion by raising the larynx.

8. The method of claim 1, wherein the at least two muscles raise the larynx and/or open the upper esophageal sphincter.

9. The method of claim 1, further comprising a switch located outside the user's body and operable by the implanted user, wherein the switch activates either the implanted signal generator or the controller to the signal generator to control either the onset and/or offset of stimulation of chronically implanted stimulators in the upper airway.

10. The method of claim 1, further comprising a switch located outside the user's body and operable by the implanted user, wherein the switch activates the implanted signal generator or the controller to the signal generator for controlled intra-muscular stimulation to prevent aspiration during swallowing.

11. The method of claim 1, further comprising a switch located outside the user's body and operable by the implanted user, wherein the switch activates the implanted signal generator or the controller to the signal generator to augment speech and/or voice motor production.

12. The method of claim 1, wherein the muscles are used during speech, swallowing or voice production.

13. A method of moving the hyoid bone, and/or parts of the upper airway and/or vocal tract within an animal by two or more different controlled muscles, comprising:

a) implanting at least one electrode into each of two or more different muscles;
b) electrically connecting each electrode to a indwelling subcutaneous signal generator capable of generating a pattern of stimulation; and
c) energizing the controlled muscles at the same time by the signal generator to synergistically move the parts of the upper airway, hyoid or vocal tract.

14. The method of claim 13, wherein the animal is a human and step c) is carried out by switching under conscious control of the implanted human.

15. The method of claim 13, wherein the implanted muscles are selected from the group consisting of the mylohyoid muscles, the geniohyoid muscles, and the thyrohyoid muscles.

16. The method of claim 13, wherein the hyoid bone is moved by simultaneous stimulation of at least one mylohyoid muscle and at least one geniohyoid muscle.

17. A method of simultaneously moving the hyoid bone and opening the upper esophageal sphincter within an human via at least one muscle attached to the hyoid bone, comprising:
implanting at least one electrode into each of two or more said muscles;
electrically connecting each electrode to a signal generator capable of generating a complex pattern to activate the muscle attached to the electrode; and
energizing electrodes in at least two of the muscles at the same time with the signal generator, thereby synergistically moving the hyoid bone and/or opening the upper esophageal sphincter.

18. The method of claim 17, wherein one or more of the electrodes are Peterson-like electrodes.

19. A method of compensating for variations in electrode placement when stimulating two or more muscles to effect a synergistic bone, sphincter, structure, tissue or cartilage movement in the hypopharynx, upper airway or vocal tract movement, comprising:

a) implanting a first electrode;

b) implanting a second electrode;

c) stimulating the first electrode and determining the effect of stimulation on movement of the bone, sphincter, tissue, structure or cartilage;

d) stimulating the second electrode and determining the effect of stimulation on movement of the bone, sphincter, tissue, structure or cartilage; and comparing the effects from c) and d) to determine an optimum coordination of signals to the first and second electrodes to obtain a desired direction and strength of the bone, sphincter, tissue, structure or cartilage movement .

20. The method of claim 19, wherein the strength and timing of the electrical signal to at least one of the electrodes is altered to compensate for the effect of electrode placement on the induced movement.

21. A system for coordinating the onset and offset of two or more different electrical signals used to synergistically effect a bone, sphincter, tissue, structure or cartilage movement in the hypopharynx, upper airway or vocal tract, the system comprising a controller with a stored program, a signal generator, at least two electrodes implanted in different muscles, and a sensor device; wherein the controller under direction of the stored program directs the signal generator to activate each of the intra-muscular electrodes to move the bone, sphincter, tissue, structure or cartilage.

22. The system of claim 21, wherein one signal generator is used to control all electrodes, and the sensor device measures the movement of a body part.

23. The system of claim 21, wherein movement of either the hyoid bone; the thyroid prominence, the larynx, the upper esophageal sphincter, upper airway or vocal tract are transduced.

24. A system for moving a cartilage within an animal, comprising:
a first electrode implanted in a first muscle attached to the cartilage;
a second electrode implanted in a second different muscle attached to the same cartilage; and
a signal generator that sends pulses to the first and second electrodes at the same time; wherein the pulses from the signal generator energize the first and second muscles to effect a synergistic movement in the cartilage that exceeds the movements made by pulses sent to the muscles at separate times.

25. The system of claim 24, wherein the animal is a human.

26. The system of claim 24, wherein the cartilage is a laryngeal cartilage.

27. The system of claim 24, wherein the cartilage is the thyroid cartilage.

28. A system for long term control of stimulation during swallowing of a human with dysphagia comprising:
at least two intra-muscular electrodes;
a signal generator connected to two or more electrodes that outputs energy to the electrodes according to a determined pattern;
a power supply that provides energy for the signal generator; and
a switch operable by the implanted human that controls the signal generator, wherein the electrodes are imbedded in at least two different muscles of the human's hyolaryngeal complex that control hyoid movement and laryngeal elevation to protect the airway and
operation of the switch by the implanted human causes contraction of the at

least two different muscles to prevent aspiration during swallowing.

29. The system of claim 28, wherein the intra-muscular electrodes are Peterson-like electrodes.

30. The system of claim 28, wherein the signal generator is imbedded within the human.

31. The system of claim 28, wherein the signal generator and power supply are provided within the same implant.

32. The system of claim 28, wherein the signal generator further includes a processor for controlling the output energy.

33. The system of claim 28, further comprising a weak muscle contraction signal detection circuit comprised of:
an electrode embedded in a muscle used for swallowing;
an electrical lead from the electrode to a signal processor to recognize a detected weak signal indicating a desire to swallow; a trigger input to the controller from the signal processor upon recognition of the detected signal; and a stored program in the controller that directs the signal generator to output muscle contraction signals through electrodes to at least two muscles in the hyolaryngeal complex in response to recognition of the detected weak signal.

34. The system of claim 33, wherein the electrode embedded in a muscle used for swallowing also is used for stimulating the muscle.

35. The system of claim 28, wherein at least two different muscles of the human's hyolaryngeal complex are selected from the group consisting of the intrinsic laryngeal muscle(s), the extrinsic laryngeal muscle(s), the bilateral mylohyoid muscle(s), the bilateral thyrohyoid muscle(s), the bilateral geniohyoid muscle(s),

the unilateral mylohyoid muscle(s), the unilateral geniohyoid muscle(s), the unilateral thyrohyoid muscle(s), the unilateral thyroarytenoid muscle(s), and the bilateral thyroarytenoid muscle(s).

36. A method of independent long term control of stimulation during swallowing to prevent aspiration in chronic dysphagia in a human patient comprising:
implanting at least one electrode(s) into at least two different muscles of the patient's hyolaryngeal complex;
implanting a controller containing a processor into the patient;
providing a patient operable switch that triggers the controller from outside the human body.

37. The method of claim 36, wherein the electrodes are Peterson-like electrodes.

38. The method of claim 36, wherein the controller comprises a signal generator and processor.

39. The method of claim 36, wherein at least two different muscles of the human's hyolaryngeal complex are selected from the group consisting of the intrinsic laryngeal muscle(s), the extrinsic laryngeal muscle(s), the bilateral mylohyoid muscle(s), the bilateral thyrohyoid muscle(s), the bilateral geniohyoid muscle(s), the unilateral mylohyoid muscle(s), the unilateral geniohyoid muscle(s), the unilateral thyrohyoid muscle(s), the unilateral thyroarytenoid muscle(s), and the bilateral thyroarytenoid muscle(s).

40. A method of independent long term control of speech and/or voice production in a human patient with speech or voice disorders comprising:
implanting at least one electrode(s) into at least two different muscles of the patient's vocal tract complex;
implanting a controller containing a processor into the patient; and
providing a patient operable switch that triggers the controller from outside the

human body.

41. The method of claim 40, wherein the electrodes are Peterson-like electrodes.

42. The method of claim 40, wherein the controller comprises a signal generator and processor.

43. The method of claim 40, wherein the at least two different muscles of the human's vocal tract complex are selected from the group consisting of the intrinsic laryngeal muscle(s), the extrinsic laryngeal muscle(s), the tongue muscle(s), the lip musculature, the muscles controlling elevation of the velum(s), the thyroarytenoid muscle(s), the cricothyroid muscle(s), the lateral cricoarytenoid muscle(s), the interarytenoid muscle(s), and the posterior cricoarytenoid muscle(s).